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WHAT IS CLAIMED IS:

1   1.   A data and telecommunications switch, comprising:

2   one or more input ports for receiving data from one or more input devices;

3   a router adapted to route said data to one or more output devices, said router

4 including a router table, the router table implemented as a DRAM and SRAM lookup

5 table; and

6   a switch control unit for conducting a search of said SRAM and DRAM lookup

7 table when said data are received.

1   2.   A data and telecommunications switch in accordance with claim 1,

2 wherein a lookup table search comprises searching an SRAM portion and, if

3 necessary thereafter, searching a DRAM portion of said SRAM and DRAM lookup

4 table.

1   3.   A data and telecommunications switch in accordance with claim 2, said

2 lookup table search comprising an interval bisection search, wherein a

3 predetermined number of levels of said interval bisection search are stored in SRAM,

4 and a remaining number of levels are stored in DRAM.

1   4.   A data and telecommunications switch in accordance with claim 2, said

2 lookup table search comprising a binary tree search, wherein a predetermined

3 number of levels of said binary tree search are stored in SRAM, and a remaining

4 number of levels are stored in DRAM.

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1   5.   A method, comprising:

2   receiving a data packet at an input port;

3   reading a header of said data packet for routing identification information;

4   using said routing identification information for accessing an SRAM portion of

5 a routing table for routing information and, if necessary, a DRAM portion of said

6 routing table; and

7   routing said data packet using said routing information.

1   6.   A method in accordance with claim 5, wherein said accessing
2 comprises performing an interval bisection search, wherein a predetermined number
3 of levels of said interval bisection search are stored in SRAM, and a remaining
4 number of levels are stored in DRAM.

1   7.   A method in accordance with claim 5, wherein said accessing
2 comprises performing a binary tree search, wherein a predetermined number of
3 levels of said binary tree search are stored in SRAM, and a remaining number of
4 levels are stored in DRAM.

1   8.   A method, comprising:
2   providing one or more input ports for receiving data from one or more input
3 devices;
4   providing a router adapted to route said data to one or more output devices,
5 said router including a router table, the router table implemented as a DRAM and
6 SRAM lookup table; and
7   providing a switch control unit for conducting a search of said SRAM and
8 DRAM lookup table when said data are received

1   9.   A method in accordance with claim 8, wherein a lookup table search
2 comprises searching an SRAM portion and, if necessary thereafter, searching a
3 DRAM portion of said SRAM and DRAM lookup table.

1   10.   A method in accordance with claim 9, said lookup table search
2 comprising an interval bisection search, wherein a predetermined number of levels of
3 said interval bisection search are stored in SRAM, and a remaining number of levels
4 are stored in DRAM.

1   11.   A method in accordance with claim 10, said lookup table search
2 comprising a binary tree search, wherein a predetermined number of levels of said

3 binary tree search are stored in SRAM, and a remaining number of levels are stored
4 in DRAM.

1   12.   A router for a data and telecommunications system, comprising:
2   a routing controller for reading routing identification information from incoming
3 data packets; and
4   a routing table for storing routing information, said routing table having a
5 DRAM portion and an SRAM cache, wherein said routing controller uses said routing
6 identification information to access said routing table for said routing information.

1   13.   A router in accordance with claim 12, wherein a first portion of a search
2 of said routing table is conducted in said SRAM cache and a second portion is
3 conducted in said DRAM portion.

1   14.   A router in accordance with claim 13, wherein said search comprises
2 an interval bisection search.

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